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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,791	06/06/2006	Mark Lawrence Williams	1033963-000025	5493

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EXAMINER

ANDREWS, LEON T

ART UNIT	PAPER NUMBER
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2416

NOTIFICATION DATE	DELIVERY MODE
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05/13/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/581,791	Applicant(s) WILLIAMS, MARK LAWRENCE	
	Examiner LEON ANDREWS	Art Unit 2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/6/06, 10/10/06, 10/4/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Title

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Abstract

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it contains legal phraseology such as 'means'. See MPEP § 608.01(b).

Correction is required.

IDS

3. The information disclosure statement filed June 6, 2006 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

IDS was not a dated document. As such, consideration was not given.

Claim Objections

4. **Claims 10 and 11, line 1** recited the optional language “substantially”. The use of this optional language does not require steps to be performed nor limits the claim to a particular structure. See MPEP 2111.04. It performs a function that is not a positive limitation only requiring the ability to so perform, and does not constitute a limitation in any patentable sense. Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

5. Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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Claims 10 and 11 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims **10 and 11** are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. While the claims recite a step or act to be performed, a statutory “process” under 35 U.S.C. 101 must (1) be tied to particular machine, or (2) transform underlying subject matter (such as an article or material) to a different state or thing. See page 10 in *Re to Bilski* 88 USPQ2d 1385. The instant claims are neither positively tied to a particular machine that accomplishes the claimed method step nor transform underlying subject matter, and therefore do not qualify as a statutory process.

The method including step of ‘substantially as described with reference to accompanying drawings’ is broad enough that the claims cannot be completely performed manually without a machine nor is any transformation apparent.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art

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to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11 are rejected under 35 U.S.C. 103(a) by Mookerje et al. (Patent No.: US 7,180,443 B1) in view of Eid et al. (Patent No.: US 6,502,042 B1).

Regarding Claims 1 and 5, a network (Fig. 1, 10, tracking system includes a radar antenna that transmits and receive signals, column 1, lines 18-22) and a method (method comprises the steps of initializing a filter with an initial state machine and matrices, columns 5 and 6, lines 66-67 and 1-2 respectively) for estimating a system state (state estimation processing measurements of system, column 1, lines 7-8), the network comprising a plurality of nodes (Fig. 1, aircraft 12 and radar antenna 14a; linear and nonlinear systems, column 11, line 63), each node having means for receiving and sending information (Fig. 1, radar antenna 14a and aircraft 12 transmit and receive signals, column 1, lines 1-23) and means for processing information (Fig. 1, measurements applied to processing arrangement 16, column 1, lines 28-29), and each node being connected to selected other nodes (Fig. 1, aircraft 12 and radar antenna 14a) of the network, each node including:

particle filter means (Fig. 3, 322, compute filter; systems to which filters apply, column 11, lines 63-64) for maintaining a set of particles (systems with parameters as inputs, column 11, lines 65-66; systems such as aircraft, space station, etc, column 12, lines 17-23) and associated weights (weighting the measurement of the state of the system, column 6, lines 28-29), which represent an estimate of the system state, and means for updating the set (Fig. 3, 326, updating

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state estimate; state estimate is updated with filter matrix weighting the measurement of the state of the system, column 6, lines 27-29; weighting the states with new measurement at each update of the filter, column 9, lines 22-23) when new information is available,

means (Fig. 3, initialize state estimate; estimating the state of the system, column 4, lines 29-30; state estimation of a system, column 5, lines 63-64) for representing the estimating system state as a mixture of Gaussian distributions (filter model represented in a statistical model by a Gaussian distribution, column 9, lines 12-15), and means for communicating (Fig. 1, radar antenna 14a transmits and receives signals, column 1, lines 21-22) said mixture to neighbouring nodes,

said means for updating, being responsive to receiving said mixture from a neighbouring node (Fig. 3, 324, input measurement from sensor), for updating its estimate of the system state (Fig. 3, 326, updating state estimate).

Mookerje et al. fails to disclose plurality of nodes.

But, the Eid et al. discloses in Fig. 10, plurality of nodes, column 13, line 24.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Eid et al.'s plurality of nodes because this would have allowed each of the input nodes in the input layer to be connected to each of the nodes in the hidden layer, column 13, lines 25-27

Regarding Claims 2 and 7, a network and a method, wherein said channel filter is operative to compute new weights (Fig. 3, 322, compute filter gains; filter weighting the measurement of the

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state of the system to generate current (new) system estimate, column 6, lines 28-31) for each particle in a resampling operation (state estimate updated (resampling) with the filter, column 6, lines 27-28), the new weights (weighting the states with new measurement at each update of the filter, column 9, lines 22-23) comprising said mixture of Gaussian distributions (Gaussian distribution in an equivalent statistical and filter models airplane tracking, column 9, lines 9-15) communicated to the node, divided by said mixture of Gaussian distributions (Gaussian distribution in an equivalent statistical and filter models airplane tracking, weighting the states with new measurement with each successive update of the filter, column 9, lines 9-23) representing the existing particle set at said node.

Regarding Claims 3 and 8, a network and a method, wherein said means for communicating is operative to transmit each Gaussian distribution (Gaussian distribution in the filter model defined to have covariance using this filter model, whereby the covariance is achievable by weighting the states with new measurement with each successive update of the filter, column 9, lines 12-23) of said mixture as signals representing the mean and covariance (Fig. 3, 326, update state estimate, covariance) of the distribution.

Regarding Claims 4 and 6, a network and a method, wherein a communication port (port of the radar system 14, column 1, lines 25-26) of each node includes a channel filter (filter for fusion of data from multiple sensors, column 3, lines 59-61; systems to which filters apply, column 11, lines 63-64).

Regarding Claim 9, a network as claimed in claim 5, wherein each node is a sensor (Fig. 3, 324, measurement from sensor; filter for fusion of data from multiple sensors, column 3, lines 59-61) for tracking aircraft (Fig. 1, tacking system tracks an aircraft target 12 using a radar system (sensor), column 1, lines 18-20).

Regarding Claims 10 and 11, a network (Fig. 1. 10, tracking system includes a radar antenna that transmits and receive signals, column 1, lines 18-22) and a method (method comprises the steps of initializing a filter with an initial state machine and matrices, columns 5 and 6, lines 66-67 and 1-2 respectively) and substantially as described with reference to the accompanying drawings (Figs. 1-3).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEON ANDREWS whose telephone number is (571)270-1801. The examiner can normally be reached on Monday through Friday 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rao S. Seema can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin C. Harper/

Primary Examiner, Art Unit 2416

LA/la
May 8, 2009